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(54) **SYSTEM AND METHOD FOR AUTOMATED DETECTION OF NEVER-PAY DATA SETS**

(71) Applicant: **Experian Information Solutions, Inc.**, Costa Mesa, CA (US)

(72) Inventors: **Christopher J. Celka**, Suwanee, GA (US); **Cristian R. Rojas**, San Diego, CA (US)

(73) Assignee: **Experian Information Solutions, Inc.**, Costa Mesa, CA (US)

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See application file for complete search history.

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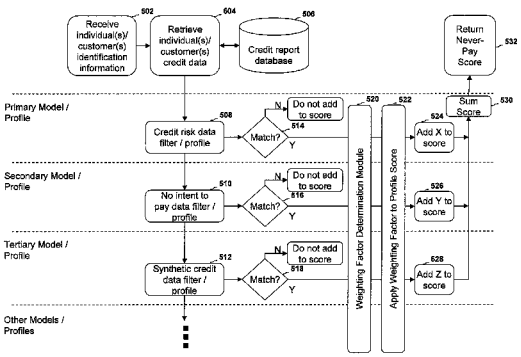
Primary Examiner — James Trammell
Assistant Examiner — Sanjeev Malhotra
(74) *Attorney, Agent, or Firm* — Knobbe Martens Olson & Bear LLP

(57) **ABSTRACT**

Data filters, models, and/or profiles for identifying and/or predicting the never-pay population (for example, those customers that make a request for credit and obtain the credit instrument but over the life of the account, never make a payment) can be useful to various commercial entities, such as those issuing mortgages, home equity lines of credit, consumer or business lines of credit, automobile loans, credit card accounts, or those entities providing services, such as utility services, phone services, and the like.

19 Claims, 8 Drawing Sheets



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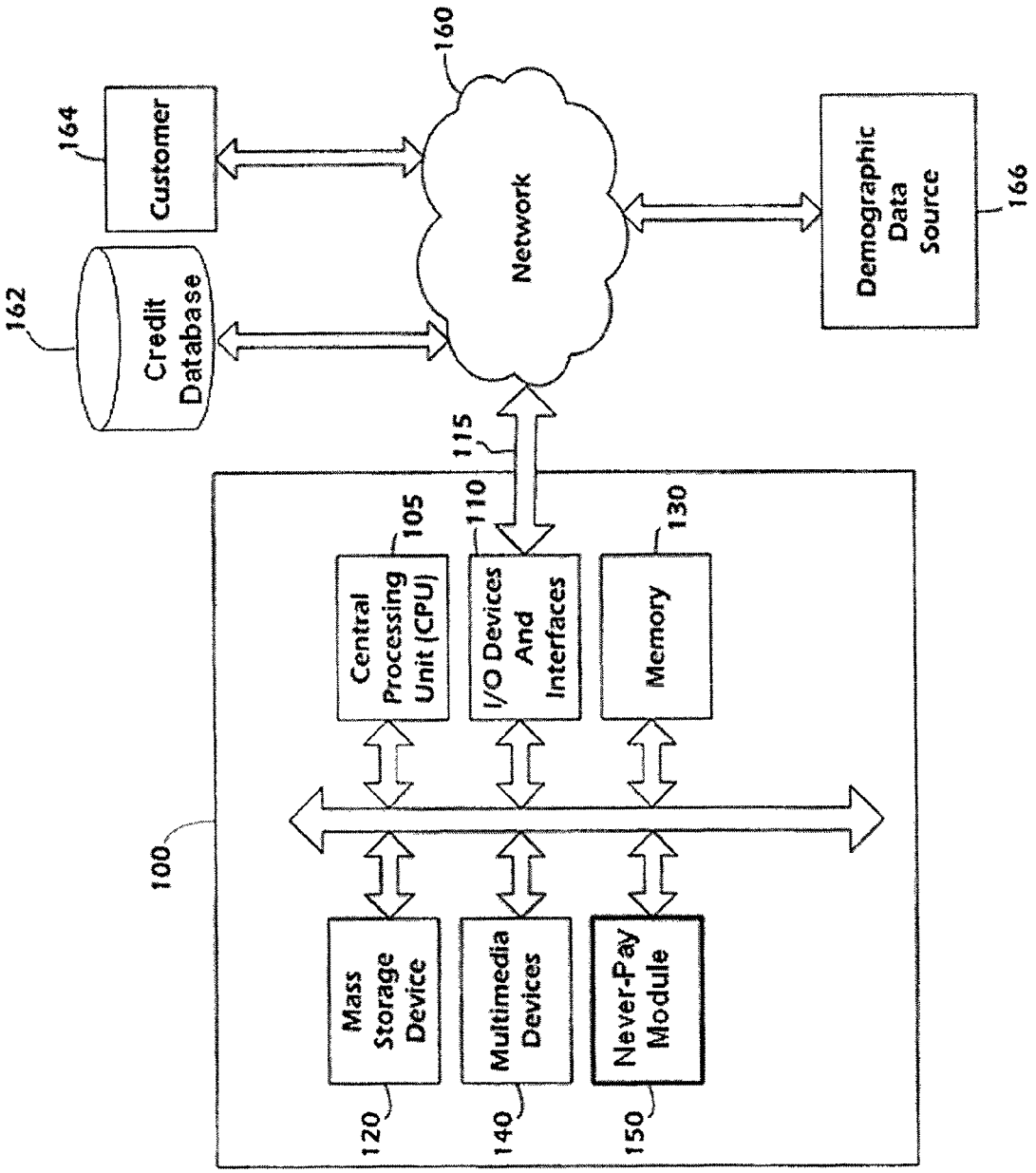
160
164
Customer
Network
Demographic Data Source
166
162
Credit Database
115
105
110
130
Central Processing Unit (CPU)
I/O Devices And Interfaces
Memory
100
Mass Storage Device
Multimedia Devices
Never-Pay Module
120
140
150

Figure 1

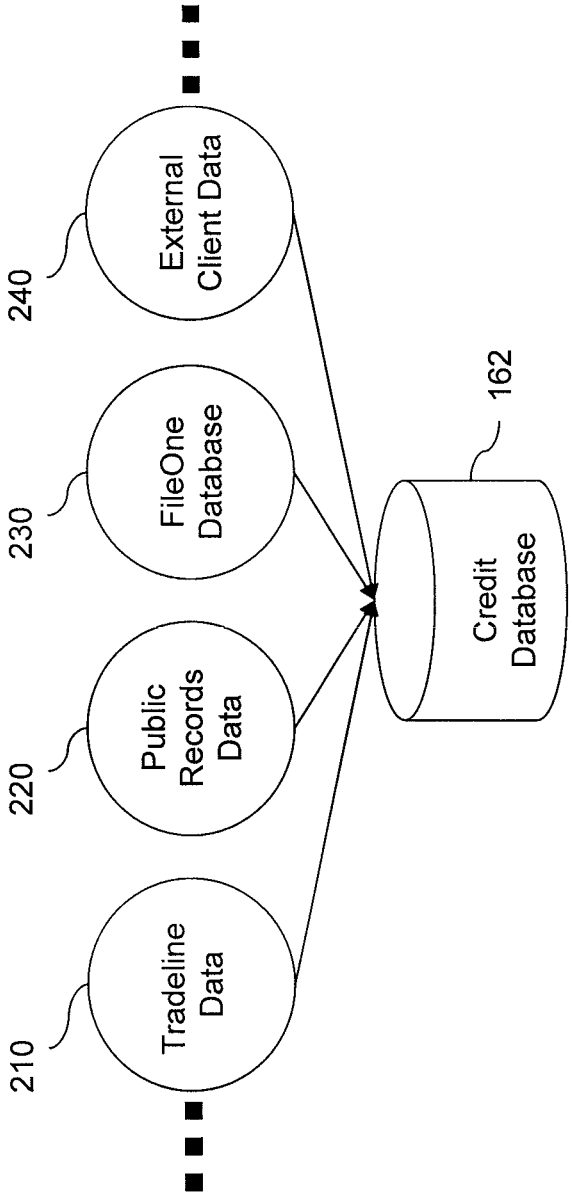
Tradeline Data
210
Public Records Data
220
FileOne Database
230
External Client Data
240
Credit Database
162

Figure 2

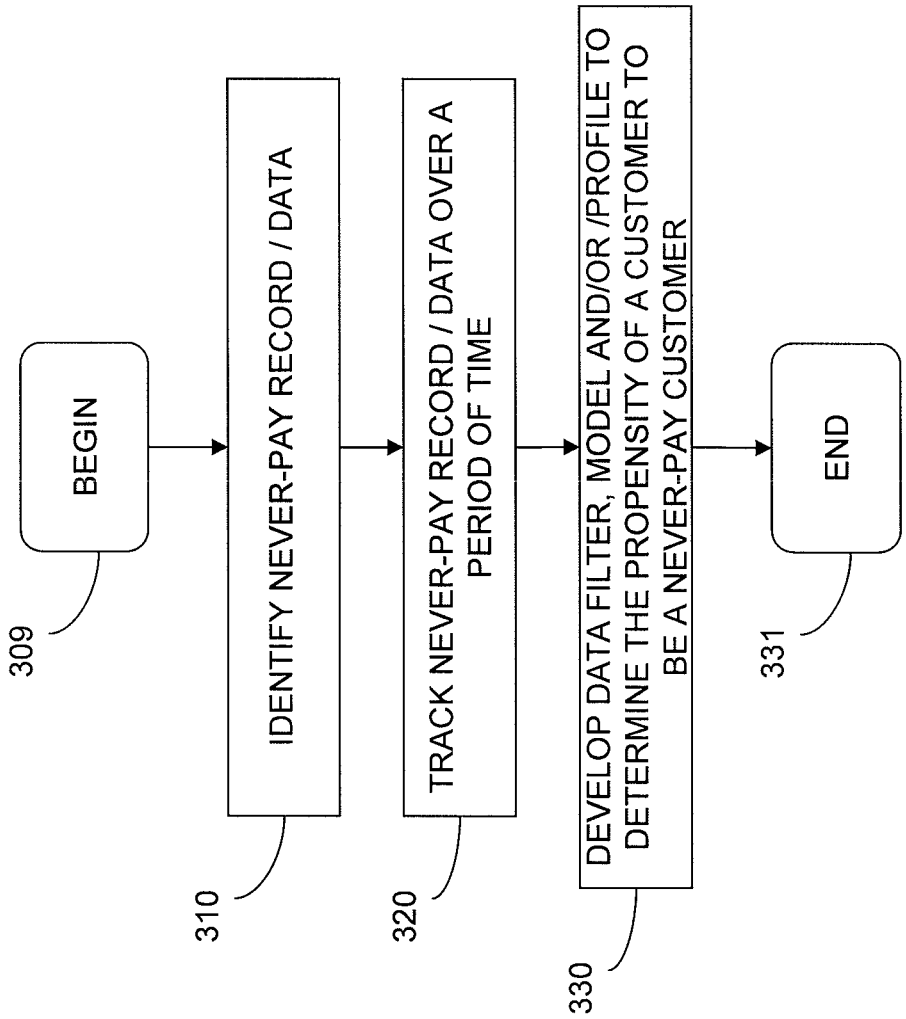
BEGIN
309
IDENTIFY NEVER-PAY RECORD / DATA
310
TRACK NEVER-PAY RECORD / DATA OVER A PERIOD OF TIME
320
DEVELOP DATA FILTER, MODEL AND/OR /PROFILE TO DETERMINE THE PROPENSITY OF A CUSTOMER TO BE A NEVER-PAY CUSTOMER
330
END
331

Figure 3

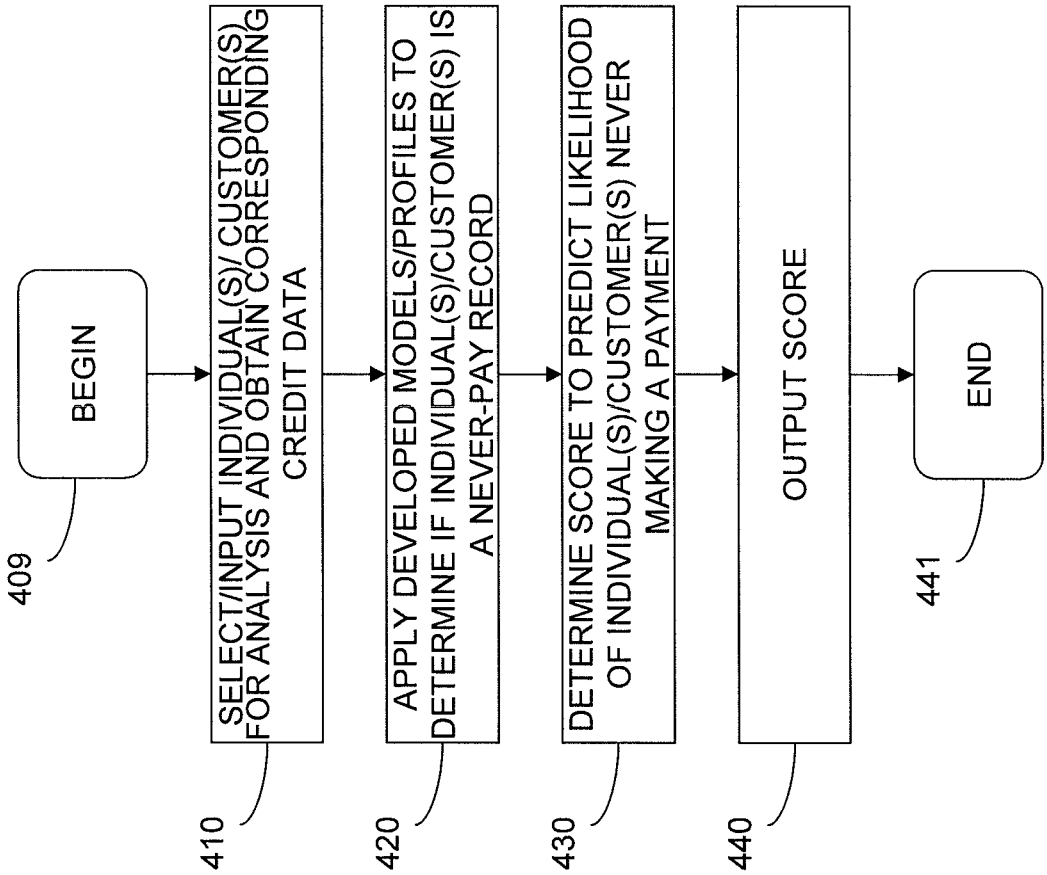
BEGIN
409
SELECT/INPUT INDIVIDUAL(S)/ CUSTOMER(S) FOR ANALYSIS AND OBTAIN CORRESPONDING CREDIT DATA
410
APPLY DEVELOPED MODELS/PROFILES TO DETERMINE IF INDIVIDUAL(S)/CUSTOMER(S) IS A NEVER-PAY RECORD
420
DETERMINE SCORE TO PREDICT LIKELIHOOD OF INDIVIDUAL(S)/CUSTOMER(S) NEVER MAKING A PAYMENT
430
OUTPUT SCORE
440
END
441

Figure 4

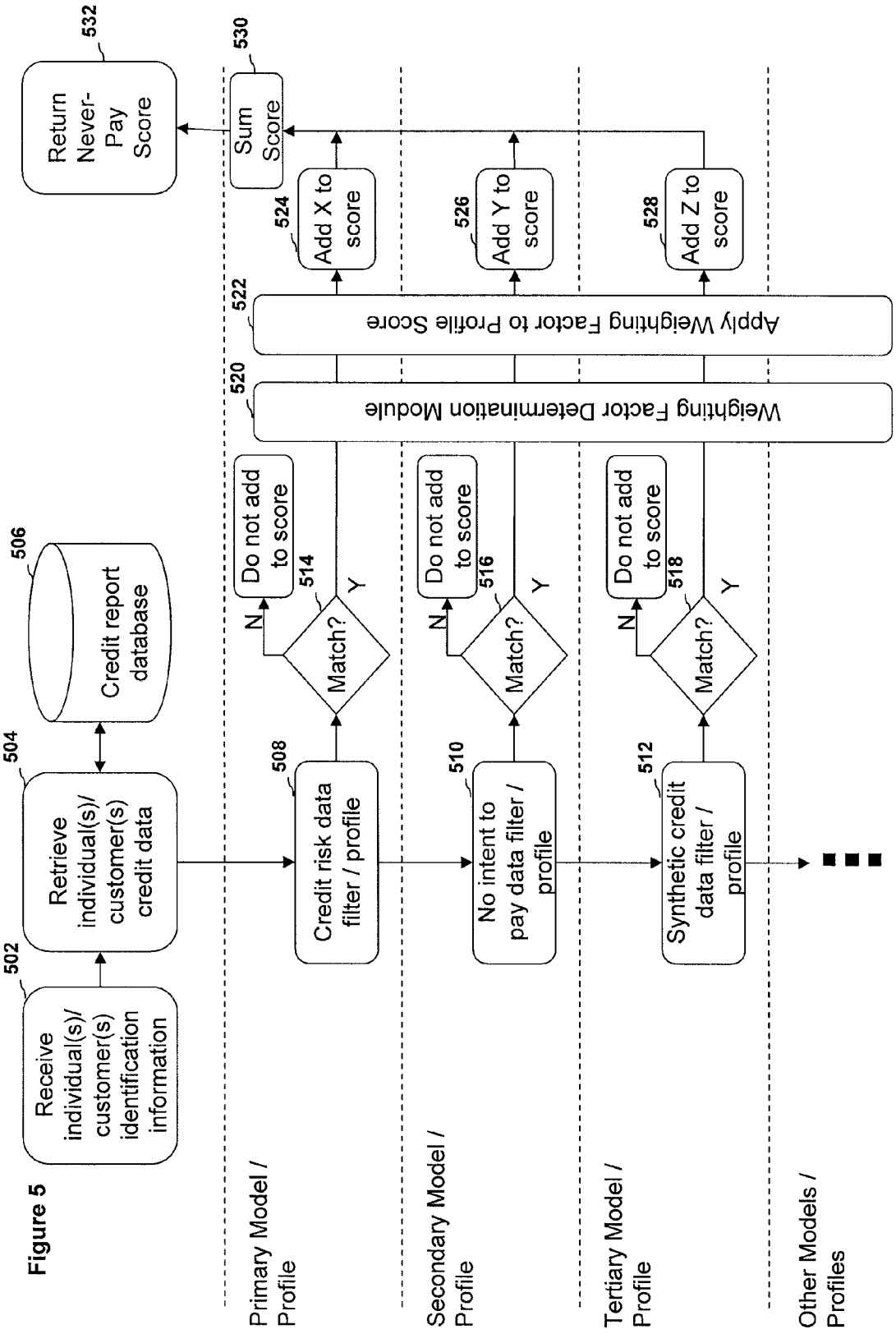
Receive individual(s)/ customer(s) identification information
502
Retrieve individual(s)/ customer(s) credit data
504
Credit report database
506
Credit risk data filter / profile
508
No intent to pay data filter / profile
510
Synthetic credit data filter / profile
512
Match?
514
Match?
516
Match?
518
Y
N
Do not add to score
Do not add to score
Do not add to score
Weighting Factor Determination Module
520
Apply Weighting Factor to Profile Score
522
Add X to score
524
Add Y to score
526
Add Z to score
528
Sum Score
530
Return Never-Pay Score
532
Primary Model / Profile
Secondary Model / Profile
Tertiary Model / Profile
Other Models / Profiles

Figure 5

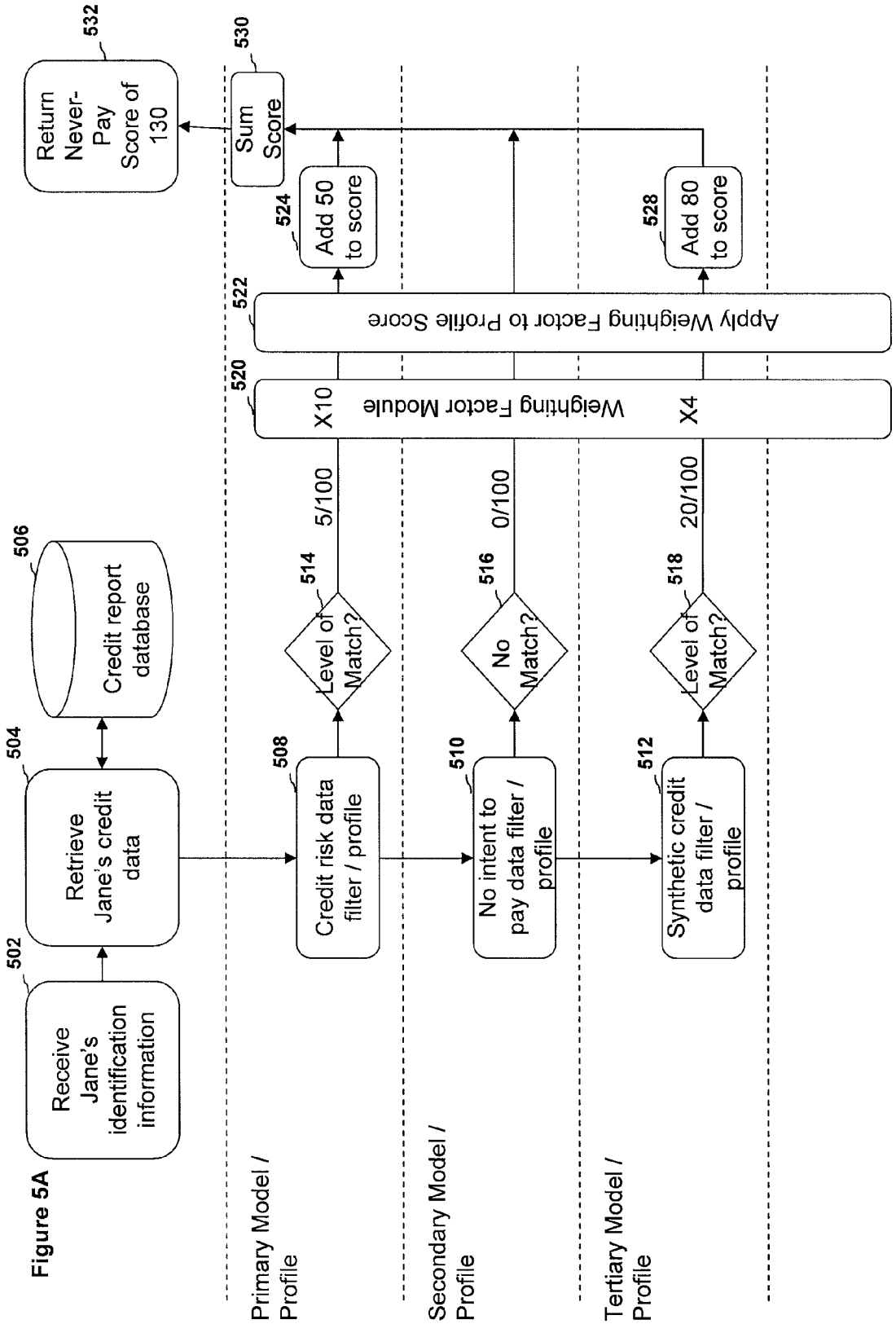
Receive Jane's identification information
502
Retrieve Jane's credit data
504
Credit report database
506
Credit risk data filter / profile
508
No intent to pay data filter / profile
510
Synthetic credit data filter / profile
512
Level of Match?
514
No Match?
516
Level of Match?
518
5/100
0/100
20/100
Weighting Factor Module
520
X10
X4
Apply Weighting Factor to Profile Score
522
Add 50 to score
524
Add 80 to score
528
Sum Score
530
Return Never-Pay Score of 130
532
Primary Model / Profile
Secondary Model / Profile
Tertiary Model / Profile

Figure 5A

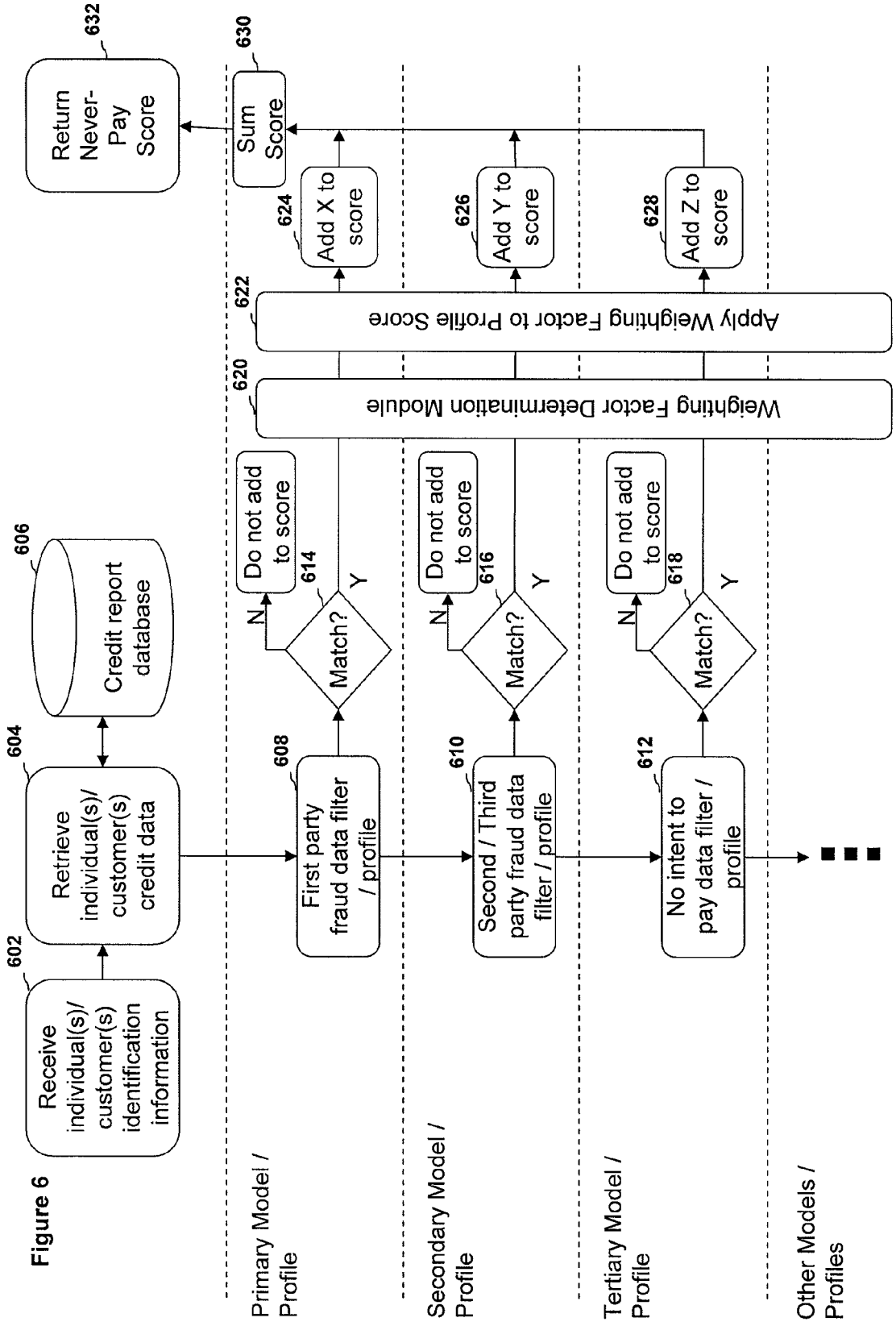
Receive individual(s)/ customer(s) identification information
602
Retrieve individual(s)/ customer(s) credit data
604
Credit report database
606
First party fraud data filter / profile
608
Second / Third party fraud data filter / profile
610
No intent to pay data filter / profile
612
Match?
614
Match?
616
Match?
618
N
Y
Do not add to score
Do not add to score
Do not add to score
Primary Model / Profile
Secondary Model / Profile
Tertiary Model / Profile
Other Models / Profiles
Weighting Factor Determination Module
620
Apply Weighting Factor to Profile Score
622
Add X to score
624
Add Y to score
626
Add Z to score
628
Sum Score
630
Return Never-Pay Score
632

Figure 6

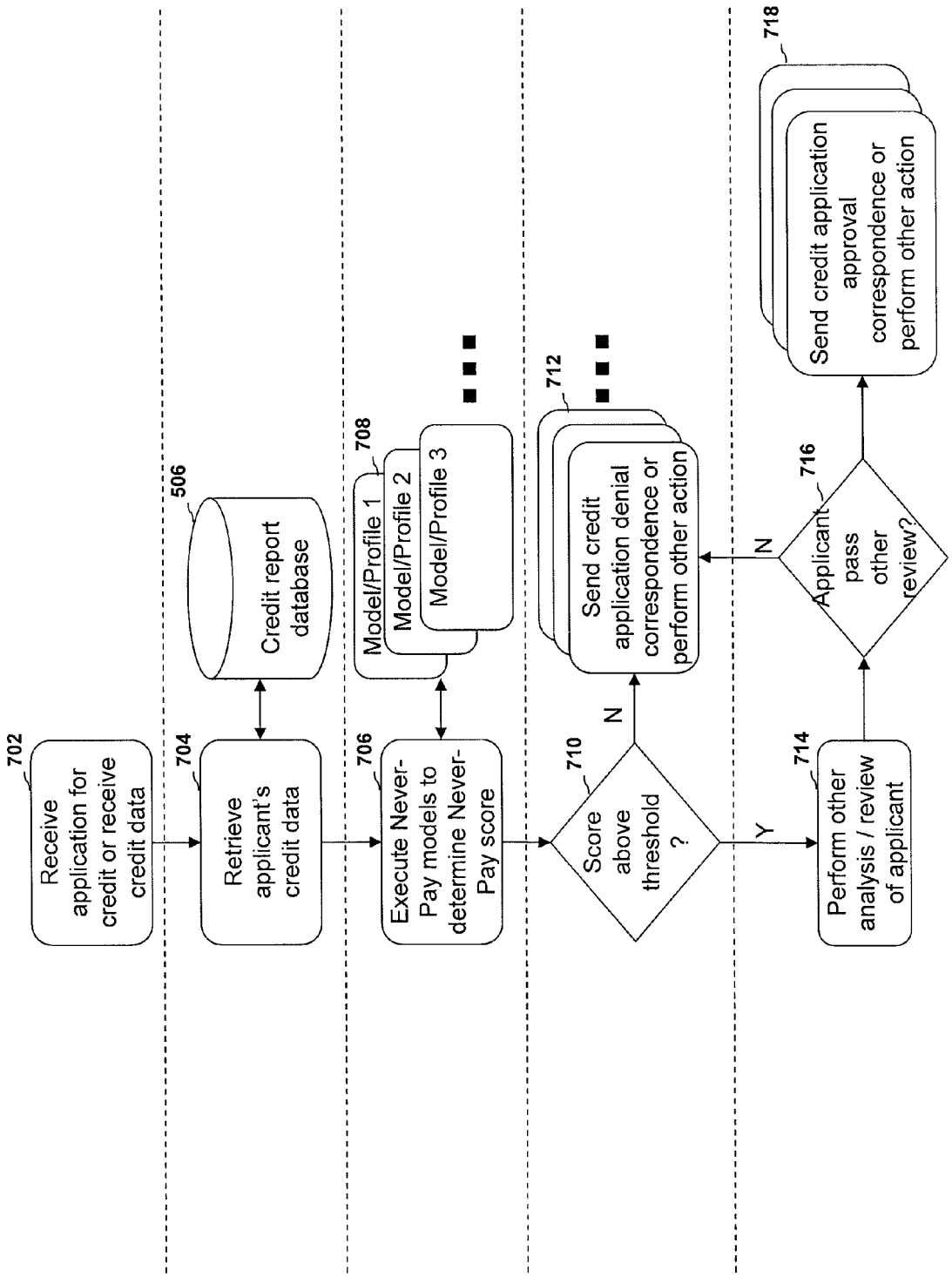
Receive application for credit or receive credit data
702
Retrieve applicant's credit data
704
Credit report database
506
Execute Never-Pay models to determine Never-Pay score
706
Model/Profile 1
Model/Profile 2
Model/Profile 3
708
Score above threshold ?
710
N
Y
Send credit application denial correspondence or perform other action
712
Perform other analysis / review of applicant
714
Applicant pass other review?
716
N
Send credit application approval correspondence or perform other action
718

Figure 7

SYSTEM AND METHOD FOR AUTOMATED DETECTION OF NEVER-PAY DATA SETS

CROSS-REFERENCE TO RELATED APPLICATIONS

This application is a continuation of U.S. application Ser. No. 12/875,045, filed Sep. 2, 2010, which claims the benefit of U.S. application Ser. No. 12/125,820, filed May 22, 2008, which claims the benefit of U.S. Provisional Application No. 60/931,902, filed on May 25, 2007. The foregoing applications are hereby incorporated by reference in their entireties.

BACKGROUND

1. Field of the Invention

This disclosure generally relates to data filters for modeling and processing credit report data and other data, and more particularly to improved systems and methods for generating and using data filters configured to conduct customer profiling and customer analysis relating to modeling, identifying, and/or predicting the never-pay population.

2. Description of the Related Art

Various financial service entities provide credit accounts, such as, for example, mortgages, automobile loans, credit card accounts, and the like, to consumers and or businesses. Prior to providing a credit account to an applicant, or during the servicing of such a credit account, many financial service providers want to know whether the applicant or customer will be or is likely to be within the "never-pay" population. The never-pay population includes without limitation those customers that make a request for credit, subsequently obtain the credit instrument, and over the life of the account, never make a payment or substantially never make a payment. Although the never-pay population is not always large (however, it can be a large population for certain financial firms, for example, those firms serving the sub-prime market or the like), it is a costly population to financial service providers and other entities. Most financial service providers can attribute a certain percentage of their losses to the never-pay population.

Traditional scoring models do not provide the necessary insight to identify the never-pay population. In part, this is due to the diversity of profiles that underlie these populations. Additionally, the attributes and/or reasons that contribute to the never-pay population are difficult to identify for some financial service providers because of their limited resources and the complexity of analyzing the never-pay population. Accordingly, these never-pay accounts are not identified early in the process, and are treated as typical credit loss and are often written off as bad debt.

SUMMARY

Never-pay data filters, models, and/or profiles can be generated and applied to both data for potential and actual customers (for example, individual consumers, businesses, or the like) to determine their propensity to never make a payment on a credit account.

In an embodiment, a never-pay automated detection system, the system comprising: a processor configure to run software modules; a data storage device storing a plurality of consumer records comprising credit bureau data, tradeline data, historical balance data, and demographic data, the data storage device in electronic communication with the computer system; and a never-pay module configured to: identify a subset of the plurality of consumer records from the data storage device; receive a first never-pay data profile from a storage repository, the first never-pay data profile identifying consumer records that are likely or substantially likely to never make a payment; apply the first never-pay data profile to each of the subset of the plurality of consumer records to generate a first never-pay score for each of the subset of the plurality of consumer records; and store in a database an aggregate never-pay score associated with the subset of the plurality of the consumer records, the aggregate never-pay score comprising at least the first never-pay score; the processor able to run the never-pay module.

In another embodiment, the never-pay module further configured to receive a second never-pay data profile from the storage repository, the second never-pay profile identifying consumer records that are likely or substantially likely to never make a payment, and apply the second never-pay profile to each of the subset of plurality of consumer records to generate a second never-pay score for each of the subset of plurality of consumer records to be included in the aggregate never-pay score. In an embodiment, the never-pay module further configured to receive a third never-pay data filter from the storage repository, the third never-pay profile identifying consumer records that are likely or substantially likely to never make a payment, and apply the third never-pay filter to each of the subset of plurality of consumer records to generate a third never pay score for each of the subset of plurality of consumer records to be included in the aggregate never-pay score.

In an embodiment, a computer implemented method for maintaining a database comprising: electronically identifying a plurality of consumer records, wherein the consumer records comprise credit bureau data, tradeline data, historical balance data, and demographic data; electronically receiving a first never-pay data filter from a storage repository; electronically applying the first never-pay data filter to each of the plurality consumer records to generate a first never pay score for each of the plurality of consumer records; and electronically storing in a database an aggregate never-pay score associated with each of the consumer records, the aggregate never-pay score comprising at least the first never-pay score.

In an embodiment, the computer implemented method further comprising electronically receiving a second never-pay data filter from the storage repository and electronically applying the second never-pay filter to each of the plurality of consumer records to generate a second never-pay score for each of the plurality of consumer records to be included in the aggregate never-pay score. In an embodiment, the computer implemented method further comprising electronically receiving a third never-pay data filter from the storage repository and electronically applying the third never-pay filter to each of the plurality of consumer records to generate a third never pay score for each of the plurality of consumer records to be included in the aggregate never-pay score.

In an embodiment, the never-pay automated detection system comprises a processor configured to run software modules; a data storage device storing a plurality of credit data records, the data storage device in communication with the processor; and a never-pay module configured to: identify records in the data storage device that are defined as never-pay records which are likely to indicate consumers that are likely or substantially likely never to make a payment; track the identified records over a time period; and develop a first never-pay data profile that predicts the propensity of a consumer to be a never-pay record using the tracked identified records, the processor able to run the never-pay module.

In an embodiment, a computer implemented method of developing a data filter for automatically identifying never-

pay database records comprising: electronically identifying records of a database that are defined as never-pay records which are likely to indicate consumers that are likely or substantially likely never to make a payment; electronically tracking the identified records over a time period; and electronically developing a data filter that predicts the propensity of a consumer to be a never-pay record using the electronically tracked identified records.

For purposes of this summary, certain aspects, advantages, and novel features of the invention are described herein. It is to be understood that not necessarily all such aspects, advantages, and features may be employed and/or achieved in accordance with any particular embodiment of the invention. Thus, for example, those skilled in the art will recognize that the invention may be embodied or carried out in a manner that achieves one advantage or group of advantages as taught herein without necessarily achieving other advantages as may be taught or suggested herein.

BRIEF DESCRIPTION OF THE DRAWINGS

The foregoing and other features, aspects and advantages of the present invention are described in detail below with reference to the drawings of various embodiments, which are intended to illustrate and not to limit the invention. The drawings comprise the following figures in which:

FIG. **1** is a block diagram illustrating an embodiment of a computer hardware system configured to run software for implementing one or more embodiments of the never-pay data filter system described herein.

FIG. **2** is a block diagram depicting an embodiment of a credit database that comprises data obtained from various data sources.

FIG. **3** is a flowchart diagram illustrating an embodiment for analyzing data to create never-pay data filters, models and/or profiles.

FIG. **4** is a flowchart diagram illustrating an embodiment for analyzing data to apply never-pay data filters, models, and/or profiles to assess the propensity of a customer to become a never-pay record.

FIG. **5** is flowchart diagram illustrating an embodiment wherein multiple data filters, models, and/or profiles are applied to the credit data of an individual(s)/customers(s) to determine an aggregate never-pay score.

FIG. **5**A is flowchart diagram illustrating an embodiment wherein multiple data filters, models, and/or profiles are applied to the credit data of a particular individual to determine an aggregate never-pay score.

FIG. **6** is flowchart diagram illustrating an embodiment wherein other data filters, models, and/or profiles are applied to the credit data of an individual(s)/customers(s) to determine an aggregate never-pay score.

FIG. **7** is flowchart diagram illustrating an embodiment for applying the aggregate never-pay score to determine whether to perform a business action or the like.

DESCRIPTION OF THE EMBODIMENTS

Embodiments of the invention will now be described with reference to the accompanying figures, wherein like numerals refer to like elements throughout. The terminology used in the description presented herein is not intended to be interpreted in any limited or restrictive manner, simply because it is being utilized in conjunction with a detailed description of certain specific embodiments of the invention. Furthermore, embodiments of the invention may comprise several novel features, no single one of which is solely responsible for its desirable attributes or which is essential to practicing the inventions herein described.

As used herein the terms "individual(s)," "customer(s)," "consumer(s)", "applicant(s)", or "business(es)", as used herein, are broad terms and are to be interpreted to include without limitation applicants, consumers, customers, single individuals as well as groups of individuals (for example, married couples or domestic partners or the like), business entities, organizations, or the like.

In general, the term "module," as used herein, refers to logic embodied in hardware or firmware, or to a collection of software instructions, possibly having entry and exit points, written in a programming language, such as, for example, Java, Lua, C or C++. A software module may be compiled and linked into an executable program, installed in a dynamic link library, or may be written in an interpreted programming language such as, for example, BASIC, Perl, or Python. It will be appreciated that software modules may be callable from other modules or from themselves, and/or may be invoked in response to detected events or interrupts. Software instructions may be embedded in firmware, such as, for example, an EPROM. It will be further appreciated that hardware modules may be comprised of connected logic units, such as, for example, gates and flip-flops, and/or may be comprised of programmable units, such as, for example, programmable gate arrays or processors. The modules described herein are preferably implemented as software modules, but may be represented in hardware or firmware. Generally, the modules described herein refer to logical modules that may be combined with other modules or divided into sub-modules despite their physical organization or storage.

In general, the terms "data filter," "model," and "profile" as used herein are broad terms that are interchangeable, and generally refer without limitation to systems, devices, and methods for amplifying, selecting, filtering, excluding, predicting, and/or identifying subsets of a dataset that are relevant, substantially relevant, and/or statistically relevant to the user.

As used herein, the terms "financial entity," "credit providers," "credit issuers," "financial institutions," "clients," "utility providers," "utility service providers," "phone service providers," "financial service providers," are broad interchangeable terms and generally refer without limitation to banks, financial companies, credit unions, savings institutions, retailers, utility (telecommunications, gas, electric, water, sewer, or the like) providers, bankcard issuers, credit card issuers, mortgage (for example, sub-prime) lenders, and the like.

Generally, the terms "never-pay" and "straight roller" as used herein are broad terms that are interchangeable, and generally refer without limitation to those customers that make a request for credit, subsequently obtain the credit instrument, and over the life of the account, never make a payment or substantially never make a payment. In an embodiment, the terms "substantially never make a payment" or "substantially likely never to make a payment" are based on various factors including without limitation type of credit/loan, number of credit/loan payments, duration of credit/loan period, amount of credit/loan, size of payment of credit/loan, or the like. Additionally, the foregoing broad terms can also refer without limitation to a booked account that rolls straight to loss without the lender, credit issuer, or the like collecting any fund from the consumer.

Data filters, models, and/or profiles for identifying and/or predicting the never-pay population (for example, those customers that make a request for credit and obtain the credit

instrument but over the life of the account, never make a payment) can be useful to various commercial entities, such as those issuing mortgages, home equity lines of credit, consumer or business lines of credit, automobile loans, credit card accounts, or those entities providing services, such as utility services, phone services, and the like.

Some acquisition risk data filters/models and fraud data filters/models identify the respective subsets of the never pay population that align with acquisition risk or fraud data filters/models that they are configured to predict. Such risk models tend to focus on the macro level of risk (for example, 90+ days past due and bankruptcy), while such fraud models attempt to identify some form of fraud, typically identity fraud. The never pay population is, however, comprised of multiple models and/or profiles, some of which do not entirely resemble those of acquisition risk and/or fraud data filters/models of credit risk consumers. Accordingly, in an embodiment, the never-pay data filters and/or profiles include without limitation, the following, and those skilled in the art will recognize other possible data filters, models, and/or profiles without limiting the scope of the disclosure herein.

a) Credit risk data filter and/or profile/model—consumers whose credit profiles include multiple delinquent or derogatory tradelines. These consumers tend to score poorly on risk models, such as, for example, VantageScore^{SM} or other scores such as, generic risk scores.

b) No intent to pay data filter and/or profile/model—a behavioral pattern in which a consumer seeks and obtains credit with no intention of ever paying the debt obligation.

c) Synthetic credit data filter and/or profile/model—the combining of real and fictitious identification data in order to establish a consumer credit profile. These profiles may not resemble those of a risky consumer. Therefore, risk scores tend to have difficulty identifying these profiles.

d) True name fraud data filter and/or profile/model (for example, second party fraud or third party fraud)—assuming another person's identity in order to open a new credit account. This is typically referred to as "second party" or "third party" fraud. Second party fraud (or familiar fraud) is generally committed by someone known by or close to a genuine customer, usually a relative or employee. Third party fraud is generally fraud committed by an unrelated third party.

e) Credit manipulation data filter and/or profile/model (for example, first party fraud)—providing false information to obtain credit on more favorable terms.

Because the accounts for the never-pay population tend to have above average balance amounts, the losses attributed to such accounts are higher than the losses attributed to normal bad credit accounts. To identify and/or limit the liability incurred by the above, methods and systems are disclosed herein to identify the never-pay population using a never-pay data filters/models and scoring system that complements risk scores.

With reference to FIG. **1**, there is illustrated an embodiment of a block diagram of a computing system **100** that is in communication with a network **160** and various devices that are also in communication with the network **160**. The computing system **100** may be used to implement certain systems and methods described herein. For example, in an embodiment the computing system **100** may be configured to receive financial and demographic information regarding individuals and generate models to apply to data of the individuals. The functionality provided for in the components and modules of computing system **100** may be combined into fewer components and modules or further separated into additional components and modules.

The computing system **100** includes, for example, a personal computer that is IBM, Macintosh, or Linux/Unix compatible. In an embodiment, the computing device comprises a server, a laptop computer, a cell phone, a personal digital assistant, a kiosk, or an audio player, for example. In an embodiment, the exemplary computing system **100** includes a central processing unit ("CPU") **105**, which may include a conventional microprocessor. The computing system **100** further includes a memory **130**, such as, for example, random access memory ("RAM") for temporary storage of information and a read only memory ("ROM") for permanent storage of information, and a mass storage device **120**, such as, for example, a hard drive, diskette, or optical media storage device. Typically, the modules of the computing system **100** are connected to the computer using a standards based bus system. In different embodiments, the standards based bus system could be Peripheral Component Interconnect (PCI), Microchannel, SCSI, Industrial Standard Architecture (ISA) and Extended ISA (EISA) architectures, for example.

The computing system **100** is generally controlled and coordinated by operating system software, such as, for example, Windows 95, Windows 98, Windows NT, Windows 2000, Windows XP, Windows Vista, Linux, SunOS, Solaris, or other compatible operating systems. In Macintosh systems, the operating system may be any available operating system, such as, for example, MAC OS X. In other embodiments, the computing system **100** may be controlled by a proprietary operating system. Conventional operating systems control and schedule computer processes for execution, perform memory management, provide file system, networking, and I/O services, and provide a user interface, such as, for example, a graphical user interface ("GUI"), among other things.

The exemplary computing system **100** includes one or more commonly available input/output (I/O) devices and interfaces **110**, such as, for example, a keyboard, mouse, touchpad, and printer. In an embodiment, the I/O devices and interfaces **110** include one or more display device, such as, for example, a monitor, that allows the visual presentation of data to a user. More particularly, a display device provides for the presentation of GUIs, application software data, and multimedia presentations, for example. The computing system **100** may also include one or more multimedia devices **140**, such as, for example, speakers, video cards, graphics accelerators, and microphones, for example.

In the embodiment of FIG. **1**, the I/O devices and interfaces **110** provide a communication interface to various external devices. In the embodiment of FIG. **1**, the computing system **100** is coupled to a network **160**, such as, for example, a LAN, WAN, or the Internet, for example, via a wired, wireless, or combination of wired and wireless, communication link **115**. The network **160** communicates with various computing devices and/or other electronic devices via wired or wireless communication links. In the exemplary embodiment of FIG. **1**, the network **160** is coupled to a credit database **162**, a demographic data source **166**, such as, for example, a government public information database, and a customer **164**, such as, for example, a financial institution that is interested in the financial opportunity associated with particular individual. The information supplied by the various data sources may include credit data, demographic data, application information, product terms, accounts receivable data, and financial statements, for example. In addition to the devices that are illustrated in FIG. **1**, the network **160** may communicate with other data sources or other computing devices. In addition, the data sources may include one or more internal and/or external data sources. In some embodiments, one or more of

the databases or data sources may be implemented using a relational database, such as, for example, Sybase, Oracle, CodeBase and Microsoft® SQL Server as well as other types of databases such as, for example, a flat file database, an entity-relationship database, and object-oriented database, and/or a record-based database.

In the embodiment of FIG. **1**, the computing system **100** also includes an application module that may be executed by the CPU **105**. In the embodiment of FIG. **1**, the application module includes a never-pay module **150**, which is discussed in further detail below. This module may include, by way of example, components, such as, for example, software components, object-oriented software components, class components and task components, processes, functions, attributes, procedures, subroutines, segments of program code, drivers, firmware, microcode, circuitry, data, databases, data structures, tables, arrays, and variables.

In the embodiments described herein, the computing system **100** is configured to execute the never-pay module **150**, among others, in order to create models/profiles and/or to provide assessment information regarding certain customers, individuals or entities. For example, in an embodiment the computing system **100** creates models that determine the propensity of an individual to be a never-pay record and assesses a never-pay score of an individual or customer that comprises a never-pay record or comprises attributes of a never-pay model. As another example, in an embodiment the computing system **100** applies the created models to determine the propensity of a particular individual/customer or set of individuals/customers to be a never-pay record and assesses the never-pay score of the individual/customer or set of individuals/customers assessed or deemed to be never-pay records. Various other types of scores, related to other types of market opportunities, may also be generated by the computing system **100**. As noted above, although the description provided herein refers to individuals or customers, the terms individual and customer should be interpreted to include applicants, or groups of individuals or customers or applicants, such as, for example, married couples or domestic partners, organizations, and business entities.

FIG. **2** depicts a diagram illustrating that in another embodiment the credit database **162** comprises data and/or bureau data obtained from various data sources, including but not limited to tradeline data **210**, public records data **220**, the Experian® FileOne^{SM} database **230**, and external client data **240**. Public records data can include without limitation court house records, litigation records, tax data, recorded liens, foreclosure data, bankruptcy data, driving records data, police records data, criminal records data, personal data from public data sources (for example, newspapers, internet pages, for example, blogs, or the like). In addition, the data may include externally stored and/or internally stored data. In certain embodiments, tradeline data **210** and public records data **220** alternatively feed into the FileOne^{SM} database **230**. The credit database **162** can comprise only a subset of the data available from the various data sources set forth above.

Referring to FIG. **3**, there is depicted another embodiment of a flowchart illustrating one method (for example, a computer implemented method) of analyzing bureau data, tradeline data, and/or other data (for example, historical balance and credit limits for a period of time, such as, for example, a twenty-four month period) to create never-pay data filters, models and/or profiles. The method can be performed on real-time, batch, periodic, and/or delayed basis for individual records or a plurality of records. The exemplary method may be stored as a process accessible by the never-pay module **150** and/or other components of the computing system **100**. Depending on the embodiment, certain of the blocks described below may be removed, others may be added, and the sequence of the blocks may be altered.

With reference to FIG. **3**, the method at block **309** is initiated, and the never-pay data filters/models generation system identifies the never-pay records/data at block **310**. In an embodiment, the never-pay records data includes without limitation consumer demographic, credit, and other data (for example, bureau data, tradeline data, historical balance data for a period of time, credit limits data for a period of time, or the like). The identified never-pay records data can also include without limitation archived data or a random selection of current data. The never-pay records/data may come from various data sources, including those discussed above with reference to FIGS. **1** and **2**. As those of skill in the art will recognize, specific criteria for being categorized as a never-pay record may vary greatly and may be based on a variety of possible data types and different ways of weighing the data. At block **320**, the never-pay records are tracked over a period of time. This tracking may include without limitation real time tracking as well as selecting records/data from a previous time frame. In certain embodiments, tracking occurs by analyzing records at one point in time, and then analyzing the same records at another point in time.

In FIG. **3** at block **330**, a data filter, model, and/or profile is developed based on the tracked records, which determines the propensity of an individual/customer to become a never-pay record, for example, a first, second, third, or other payment default. In an embodiment, the development of the data filter, model, and/or profile comprises identifying consumer characteristics, attributes, or segmentations that are statistically correlated (for example, a statistically significant correlation) with the occurrence of a never-pay record. In an embodiment, the development of the data filter, model, and/or profile comprises developing a set of heuristic rules, filters, and/or electronic data screens to determine and/or identify and/or predict which consumer profiles would be classified as a never-pay consumer based on various data, such as, for example, bureau data, tradeline data, historical balance data for a period of time, credit limits data for a period of time, or the like. The development of data filters, models, and/or profiles can also comprise developing a set of heuristic rules, filters, and/or electronic data screens to determine and/or identify and/or predict which identified never-pay tradelines are attributable to identity theft based on using bureau data, consumer identification data, and/or the like. It is recognized that other embodiments of FIG. **3** may be used. For example, the method of FIG. **3** could be repeatedly performed to create multiple never-pay data filters, models, and/or profiles.

Referring to FIG. **4**, there is depicted another embodiment of a flowchart illustrating a method (for example, a computer implemented method) of analyzing data to apply never-pay data filters, models, and/or profiles to assess the propensity of a customer to become a never-pay record. The exemplary method may be stored as a process accessible by the never-pay module **150** and/or other components of the computing system **100**. Depending on the embodiment, certain of the blocks described below may be removed, others may be added, and the sequence of the blocks may be altered.

With reference to FIG. **4**, the method is initiated at block **409**, and the never-pay data filters/models application system at block **410** selects or receives consumer(s) information and data wherein analysis is performed on the consumer(s). In certain embodiments, block **410** also includes the step of obtaining credit data, bureau data, tradeline data, and/or other data from the credit database **162**. At block **420**, the never-pay data filters/models application system analyzes the obtained

credit data by applying the developed data filter(s), model(s), and/or profile(s) from block **330** to the obtained credit data to determine if the consumer(s) exhibits characteristics and/or attributes of a never-pay record. Based on the analysis completed at block **420**, a score is determined at block **430** to predict the likelihood that the consumer(s) is a never-pay record. In an embodiment, the never-pay data filters/models application system at block **420** can select an appropriate data filter from a plurality of filters stored in a data filter repository, wherein the selection of an appropriate data filter can be based on various factors such as price, speed of response, geographic region, the clients account, or the like. At block **440**, the determined never-pay score is sent to the user or another module, system, network, or the like.

Referring to FIG. **5**, there is depicted an embodiment of a flowchart illustrating a method (for example, a computer implemented method) wherein multiple never-pay data filters, models and/or profiles are applied to the data (for example, the credit data, tradeline data, demographic data, or the like) of a consumer(s) to determine an aggregate never-pay score. In the illustrated embodiment, the never-pay data filters, models, and/or profiles include, but are not limited to, the credit risk profile, the no intent to pay profile, the synthetic credit profile, or the like. In certain embodiments, different values are combined to form the aggregate never-pay score depending on whether the data exhibits attributes of a particular never-pay profile. For example, if the credit data exhibits attributes or matches the no intent to pay profile then the value of Y is added to the aggregate never-pay score whereas if the credit data exhibits attributes or matches the credit risk profile then only a value of X is added to the aggregate credit score.

In the illustrated embodiment depicted in FIG. **5**, the never-pay data filters/models application system receives individual(s)/customer(s) data, including without limitation identification and/or demographic information/data about the individual(s)/customer(s). At block **504**, never-pay data filters/models application system uses the identification and/or demographic information/data to retrieve the credit data of the individual(s)/customer(s) from credit report database **506**, which in an embodiment is the credit database **162** illustrated in FIG. **1** and FIG. **2**. At block **508**, the identification/demographic information/data and/or the credit data of the individual(s)/customer(s) is analyzed, compared with, or passed through the credit risk data filter, model, and/or profile to determine whether the individual(s)/customer(s) exhibits the characteristics, attributes, and/or qualities of a credit risk profile. For example, the credit risk data filter, model, and/or profile can determine whether the individual(s)/customer(s) exhibits a VantageScore^{SM} or other score below a certain threshold, or is past due in certain accounts, or is bankrupt, or has committed fraud, or the like. If at block **514** the identification/demographic information/data and/or the credit data of the individual(s)/customer(s) matches the credit risk data filter, model, and/or profile **508** then the never-pay data filters/models application system assigns a score to the individual(s)/customer(s), wherein certain embodiments the assigned score is based on how closely the individual(s)/customer(s) matches the credit risk data filter, model, and/or profile.

Referring to FIG. **5** at block **520**, the never-pay data filters/models application system determines a weighting factor to apply to the credit risk profile score. In an embodiment, the weighting factor is predetermined or static, and in another embodiment, the weighting factor is dynamically determined (for example, the weighting factor is dynamically determined based on whether the individual(s)/customer(s) matches other data filters, models, and/or profiles, or whether the data filter, model, or profile has been recently updated, or the like). If at block **514** the identification/demographic information/data and/or the credit data of the individual(s)/customer(s) does not match the credit risk data filter, model, and/or profile **508** then no score is added to the aggregate never-pay score.

In FIG. **5** at block **510**, the identification/demographic information/data and/or the credit data of the individual(s)/customer(s) is analyzed, compared with, or passed through the no intent to pay data filter, model, and/or profile to determine whether the individual(s)/customer(s) exhibits the characteristics, attributes, and/or qualities of a consumer that has no intent or substantially no intent to make a payment on the account. For example, the no intent to pay data filter, model, and/or profile can analyze the consumer's prior behavioral patterns to determine whether the consumer has sought and obtained credit and never paid the debt obligation, or analyze whether the current behavioral patterns of the consumer exhibit an intent never to pay the debt obligation (for example, intent can be exhibited by a consumer's recent bankruptcies or high number of recent delinquencies or the like). If at block **516** the identification/demographic information/data and/or the credit data of the individual(s)/customer(s) matches the no intent to pay data filter, model, and/or profile **510** then the never-pay data filters/models application system assigns a score to the individual(s)/customer(s), wherein certain embodiments the assigned score is based on how closely the individual(s)/customer(s) matches the no intent to pay data filter, model, and/or profile.

Referring to FIG. **5** at block **520**, the never-pay data filters/models application system determines a weighting factor to apply to the no intent to pay profile score. In an embodiment, the weighting factor is predetermined or static, and in another embodiment, the weighting factor is dynamically determined (for example, the weighting factor is dynamically determined based on whether the individual(s)/customer(s) matches other data filter, model, or profile, or whether the data filter, model, or profile has been recently updated, or the like). If at block **516** the identification/demographic information/data and/or the credit data of the individual(s)/customer(s) does not match the no intent to pay data filter, model, and/or profile **510** then no score is added to the aggregate never-pay score.

In FIG. **5** at block **512**, the identification/demographic information/data and/or the credit data of the individual(s)/customer(s) is analyzed, compared with, or passed through the synthetic credit data filter, model, and/or profile to determine whether the individual(s)/customer(s) exhibits the characteristics, attributes, and/or qualities of a consumer that has combined real and fictitious identification and credit data in order to establish a consumer credit profile. For example, the never-pay data filters/models application system can compare the data inputted in a credit application form created by the individual(s)/customer(s) with the credit and demographic data stored in the credit report database **506** to identify real and fictitious identification data and credit data. If at block **518** the identification/demographic information/data and/or the credit data of the individual(s)/customer(s) matches the synthetic credit data filter, model, and/or profile **512** then the never-pay data filters/models application system assigns a score to the individual(s)/customer(s), wherein certain embodiments the assigned score is based on how closely the individual(s)/customer(s) matches the synthetic credit data filter, model, and/or profile.

Referring to FIG. **5** at block **520**, the never-pay data filters/models application system determines a weighting factor to apply to the synthetic credit profile score. In an embodiment, the weighting factor is predetermined or static, and in another embodiment, the weighting factor is dynamically determined

(for example, the weighting factor is dynamically determined based on whether the individual(s)/customer(s) matches other data filter, model, or profile, or whether the data filter, model, or profile has been recently updated, or the like). If at block **518** the identification/demographic information/data and/or the credit data of the individual(s)/customer(s) does not match the synthetic credit data filter, model, and/or profile **512** then no score is added to the aggregate never-pay score.

With reference to FIG. **5**, in an embodiment, the weighting factor determination module **520** identifies all the various never-pay profiles that the consumer matches and then determines the unique weighting factor to apply to each of the profile scores. The assigned unique weighting factor is applied to the profile score at block **522** and the adjusted profile scores are summed at block **530** to generate or output an aggregate never-pay score for the consumer(s) at block **532**.

FIG. **5**A depicts an embodiment of applying the method illustrated in FIG. **5** to determine an aggregate never-pay score for an individual named Jane. In this example, Jane's credit data exhibits certain qualities, characteristics, and/or attributes of the credit risk data filter, model, and/or profile. At block **514**, based on the level of match or similarity of Jane's credit data to the credit risk data filter, model, and/or profile, the system assigned Jane a first never-pay score of 5 out of 100 possible points. At block **516**, based on the level of match or similarity of Jane's credit data to the no intent to pay data filter, model, and/or profile, the system assigned Jane a second never-pay score of 0 out of 100 possible points, indicating that Jane did not exhibit any or only a few qualities, characteristics, or attributes of the no intent to pay profile. At block **518**, based on the level of match or similarity of Jane's credit data to the synthetic credit data filter, model, and/or profile, the system assigned Jane a third never-pay score of 20 out of 100 possible points. The weighting factor determination module **520** analyzes which data filters were triggered or matched with Jane's credit data and determines an appropriate weighting factor to assign to each never-pay score. Here, this illustrative example, the weighting factor determination module **520** assigned a factor of 10 to the credit risk data filter and a factor of 4 to the synthetic credit data filter, indicating that the credit risk data filter is a better predictor than the synthetic credit data filter of Jane's intent to never make a payment. The individual never-pays scores are combined to generate an aggregate never-pay score at blocks **530** and **532**.

FIG. **6** is flowchart diagram illustrating an embodiment wherein other data filters, models, and/or profiles are applied to the credit data of an individual(s)/customers(s) to determine an aggregate never-pay score. In the illustrated embodiment, the never-pay data filters, models, and/or profiles include but are not limited to the first party fraud profile, the second/third party profile, the no intent to pay profile, or the like. In certain embodiments, different values are added to the aggregate never-pay score depending on whether the credit data exhibits attributes of a particular never-pay profile.

With reference to FIG. **6** at block **608**, the identification/demographic information/data and/or the credit data of the individual(s)/customer(s) is analyzed, compared with, or passed through the first party data filter, model, and/or profile to determine whether the individual(s)/customer(s) exhibits the characteristics, attributes, and/or qualities of a first party profile. For example, the first party data filter, model, and/or profile can determine whether the individual(s)/customer(s) has provided false information to obtain credit on more favorable terms, or the like. If at block **614** the identification/demographic information/data and/or the credit data of the individual(s)/customer(s) matches the first party data filter, model, and/or profile **608** then the never-pay data filters/models application system assigns a score to the individual(s)/customer(s), wherein certain embodiments the assigned score is based on how closely the individual(s)/customer(s) matches the first party data filter, model, and/or profile. For example, the assigned score can be increased if a certain number of application data elements are determined to be false.

Referring to FIG. **6** at block **620**, the never-pay data filters/models application system determines a weighting factor to apply to the first party profile score. In an embodiment, the weighting factor is predetermined or static, and in another embodiment, the weighting factor is dynamically determined (for example, the weighting factor is dynamically determined based on whether the individual(s)/customer(s) matches other data filter, model, or profile, or whether the data filter, model, or profile has been recently updated, or the like). If at block **614** the identification/demographic information/data and/or the credit data of the individual(s)/customer(s) does not match the first party data filter, model, and/or profile **608** then no score is added to the aggregate never-pay score.

In FIG. **6** at block **610**, the identification/demographic information/data and/or the credit data of the individual(s)/customer(s) is analyzed, compared with, or passed through the second party and/or third party data filter, model, and/or profile to determine whether the individual(s)/customer(s) exhibits the characteristics, attributes, and/or qualities of a consumer that assumed another person's identity in order to open a new credit account. For example, the second party and/or third party data filter, model, and/or profile can analyze whether a consumer has assumed the identity of someone known to the consumer (second party fraud, for example, using a social security number having a high probability of belonging to another or the observance of certain patterns or trends in credit bureau data) or has assumed the identity of someone unrelated to the consumer (third party fraud). If at block **616** the identification/demographic information/data and/or the credit data of the individual(s)/customer(s) matches the second party and/or third party data filter, model, and/or profile **610** then the never-pay data filters/models application system assigns a score to the individual(s)/customer(s), wherein certain embodiments the assigned score is based on how closely the individual(s)/customer(s) matches the second party and/or third party data filter, model, and/or profile.

Referring to FIG. **6** at block **620**, the never-pay data filters/models application system determines a weighting factor to apply to the second party and/or third party profile score. In an embodiment, the weighting factor is predetermined or static, and in another embodiment, the weighting factor is dynamically determined (for example, the weighting factor is dynamically determined based on whether the individual(s)/customer(s) matches other data filter, model, or profile, or whether the data filter, model, or profile has been recently updated, or the like). If at block **616** the identification/demographic information/data and/or the credit data of the individual(s)/customer(s) does not match the second party and/or third party data filter, model, and/or profile **610** then no score is added to the aggregate never-pay score. Other data filters, models, and/or profiles to determine whether consumers exhibit the characteristics, attributes, and/or qualities of a never-pay consumer can be applied by the never-pay data filters/models application system to generate an aggregate never-pay score, including without limitation a three-digit zip code level predictor, wherein, for example, the twenty-five largest metro areas are identified and a never-pay risk level is associated with each area. In an embodiment, a data filter,

model, and/or profile is based on a set of predictor attributes or variables that summarize the risk across multiple attributes, and these summarized attributes or variables are used in lieu of individual attributes or variables, such that in certain embodiments, the summarized attributes or variables are able to preserve predictiveness of the individual attributes while ensuring a more stable predictor.

FIG. **7** is flowchart diagram illustrating an embodiment for applying the aggregate never-pay score to determine whether to perform a business action or the like. In the illustrated embodiment, there is illustrated a method wherein the never-pay score for a particular applicant is applied to determine whether a denial correspondence or an approval correspondence is sent to the applicant. As those of skill in the art will recognize, the illustrated method is applicable for analyzing one applicant at a time or multiple applicants in a batch or bulk process.

With reference to FIG. **7**, an application for a credit account or a consumer's credit data is received from a third party source (for example, an applicant, a financial services firm, credit card issuer, or the like) at block **702**. At block **704** the applicant's or consumer's credit data is retrieved from the credit report database **506**. At block **706** the never-pay data filters/models application system applies the never-pay data filters, models, and/or profiles **708** to determine and/or generate a never-pay score for the applicant or the consumer, for example, using the systems and computer implemented methods disclosed with reference to FIGS. **5** and **6**. At block **710** the never-pay data filters/models application system determines whether the never pay score is above a threshold. In an embodiment, the threshold level is predetermined by the third party (for example the credit card issuer, or the like), and in other embodiments, the threshold level is dynamically determined based on the consumer, period of time (for example, proximity to end of financial quarter), or proximity to targets or goals (for example, issue one hundred new approved applications).

Referring to FIG. **7**, if the never-pay score is below the threshold, then at block **712** the business function to be performed is to, for example, send a credit application denial correspondence to the applicant. In an embodiment, if the never-pay score is at or above the threshold then at block **714** the business function to be performed is to, for example, perform other analysis or review of the application or credit data to determine if the applicant satisfies other criteria at block **716**. If the other criteria is satisfied, then at block **718** the business function to be performed is to, for example, send a credit application approval correspondence to the application; otherwise, a credit application denial correspondence is sent to the application at block **712**. In another embodiment, if the never-pay score is at or above the threshold then at block **718** the business function to be performed is to, for example, send a credit application approval correspondence to the applicant.

In reference to FIG. **7**, there other business functions **712**, **718** that can be performed in lieu of the illustrated business functions. For example, in an embodiment, the never-pay data filters/models application system is used to determine a deposit strategy for a new applicant or consumer. For example, a cellular phone company can use the never-pay data filters/models application system to determine whether to require a deposit from a new consumer and/or to determine the amount of the deposit. Credit card issuers and/or other financial institutions can utilize the never-pay data filters/models application system to determine whether a credit limit should be applied to a new consumer and/or to determine the amount of the credit limit to be applied to a new consumer. In an embodiment, banks, credit card issuers, and/or other financial entities can use the never-pay data filters/models application system (with or without other credit scores or the like) to determine whether a credit limit should adjusted up or down for existing consumers. Credit card issuers, banks, and/or other financial entities can use the never-pay data filters/models application system in a pre-screen scenario. For example, a credit card issuer can identity a pool of consumers and use the never-pay data filters/models application system to identify which consumers in the pool that should receive a pre-approved credit account offer. This pre-screen process can be performed on a batch basis or real-time and/or periodic basis. In an embodiment, the never-pay data filters/models application system is used to automatically and/or substantially immediately (for example, on a real-time basis) determine whether credit should be extended to a consumer. For example, a credit card issuer can determine whether to approve an applicant applying online or on the phone for credit. Those skilled in the art will recognize other business functions that can be performed with the never-pay data filters/models application system.

It is recognized that a variety of scoring methods may be used including numeric scores where the lower number indicates a never-pay or where a higher number indicates a never-pay. In addition, other scores may be used such as, for example, letters scores (for example A, B, C, D or F) or categories (for example good, bad), and so forth.

The never-pay model and/or score can be used in or applied to several markets including but not limited to the sub-prime lending market, finance companies, credit unions, savings institutions, retailers, telecommunications companies, bankcard issuers, student loans, other markets wherein credit issuers face risk and/or fraud dilemmas, or any other markets. The never-pay model and/or score is a useful tool for both risk management by allowing risk managers to discriminate on the front-end, and for fraud management by providing fraud managers a better idea on where to focus their efforts.

Additionally, the never-pay data filters, models, profiles, and/or scores can be bundled with a variety of other products and scores including but not limited to VantageScore^{SM} or any other generic score used to improve account acquisition, reduce account acquisition costs, justify credit line adjustments, predict loss rates, predict risks such as bankruptcy, fraud, and so forth, mitigate liability, or the like. A variety of pricing strategies can be applied to the never-pay model and/or score including but not limited to using the never-pay model and/or score as a value added solution, a loss-leader promotion, a free add-on service, a cross-sell opportunity, or the like. Additionally, the never-pay model and/or score can be offered at various price points depending on different factors including but not limited to speed of response, the number of profiles/models applied, the number of records reviewed, or the like.

There are several advantages in using various embodiments of the never-pay data filters/models generation system including without limitation: reducing account acquisition costs by helping to eliminate high-risk prospective consumers that do not fit a credit criteria; gaining better intelligence on consumer behavior and motivation by providing access to the most accurate data to show the most complete picture of the right consumer; gaining greater control over risk by more accurately and precisely identifying the never-pay population; automating decision making processes based on non-judgmental, uniform variables selected based on the internal data and/or client external data; allowing lenders, financial entities, and other entities to better discriminate traditional

credit risk more finely to address and meet financial reporting and risk management regulatory requirements; or the like.

In some embodiments, the acts, methods, and processes described herein are implemented within, or using, software modules (programs) that are executed by one or more general purpose computers. The software modules may be stored on or within any suitable computer-readable medium. It should be understood that the various steps may alternatively be implemented in-whole or in-part within specially designed hardware. The skilled artisan will recognize that not all calculations, analyses and/or optimization require the use of computers, though any of the above-described methods, calculations or analyses can be facilitated through the use of computers.

Although this invention has been disclosed in the context of certain preferred embodiments and examples, it will be understood by those skilled in the art that the present invention extends beyond the specifically disclosed embodiments to other alternative embodiments and/or uses of the invention and obvious modifications and equivalents thereof. Additionally, the skilled artisan will recognize that any of the above-described methods can be carried out using any appropriate apparatus. Thus, it is intended that the scope of the present invention herein disclosed should not be limited by the particular disclosed embodiments described above.

What is claimed is:

1. A computerized method comprising:

receiving, by a server computer through a communication link, data associated with application of a credit line during the application stage;

analyzing, by the server computer, the data for predictive variables for use in a model for calculating a party fraud score, wherein the predictive variables include at least one of: previously unpaid debt obligation, recent bankruptcy, or high number of recent delinquencies on one or more credit lines;

analyzing data associated with one or more previously flagged, existing credit lines for elements to be used in the model for calculating the first party fraud score;

transmitting, from the server computer to a remote computer through a communication link that renders a graphical user interface on a display device of the remote computer, an electronic indication regarding the credit line when at least one or more of the predictive variables or the elements analyzed cause the first party fraud score to exceed a pre-described fraud likelihood threshold,

wherein the first party fraud score is indicative of a propensity to never make payment on the credit line, and

wherein the indication regarding the credit line is used to make a real-time decision regarding approval or denial of the credit line application.

2. The computerized method of claim **1** wherein the elements associated with analyzing data associated with one or more previously flagged, existing credit lines includes tradeline data.

3. The computerized method of claim **1** wherein analyzing data for predictive variables includes profiling of at least one entity associated with the application of the credit line.

4. The computerized method of claim **1** wherein the elements associated with analyzing data associated with one or more previously flagged, existing credit lines includes computed variables.

5. The computerized method of claim **1** wherein analyzing the data for predictive variables includes analyzing information provided by an entity applying for the credit line for false information.

6. The computerized method of claim **1** further comprising analyzing data associated with the credit line during a selected, initial time period after approving the credit line.

7. The computerized method of claim **6** wherein analyzing the data associated with the credit line during the selected, initial time period after approving the credit line includes analyzing a number of payments made on the credit line.

8. The computerized method of claim **6** wherein analyzing the data associated with the credit line during the selected, initial time period after approving the credit line includes analyzing a size of payments made on the credit line.

9. The computerized method of claim **6** wherein analyzing the data associated with the credit line during the selected, initial time period after approving the credit line includes analyzing information of associated credit and loan accounts.

10. The computerized method of claim **6** wherein analyzing the data associated with the credit line during the selected, initial time period after approving the credit line includes analyzing information associated with customers associated with the credit line.

11. The computerized method of claim **6** wherein analyzing the data associated with the credit line during the selected, initial time period after approving the credit line includes analyzing an amount of the credit.

12. The computerized method of claim **6** wherein analyzing the data associated with the credit line during the selected, initial time period after approving the credit line includes analyzing customer information.

13. The computerized method of claim **11** wherein a payment on the account has been received.

14. The computerized method of claim **11** wherein a payment on the account has been received, and the payment has not yet cleared.

15. The computerized method of claim **6** wherein analyzing data associated with the credit line during the selected, initial time period after approving the credit line includes analyzing the transactions associated with a customer and one or more credit lines.

16. The computerized method of claim **6** wherein analyzing data associated with the credit line during the selected, initial time period after approving the credit line includes creation of transaction profile variables associated with the credit line and customer profiles.

17. The computerized method of claim **1** further comprising attempting to electronically contact an entity associated with the credit line.

18. The computerized method of claim **1** further compromising merging the first party fraud score with a second first party fraud score associated with the application.

19. The computerized method of claim **1** wherein analyzing data associated with one or more previously flagged, existing credit lines includes searching for a condition where there is a request for an increase in a credit limit associated with the one or more credit lines.

* * * * *

UNITED STATES PATENT AND TRADEMARK OFFICE

CERTIFICATE OF CORRECTION

PATENT NO. : 9,251,541 B2
APPLICATION NO. : 13/718004
DATED : February 2, 2016
INVENTOR(S) : Christopher J. Celka et al.

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

Title Page

In column 1 (page 9, item 56) at line 3, Under Other Publications, change "Respresentatives" to --Representatives--.

In column 2 (page 9, item 56) at line 14, Under Other Publications, change "QualifFile" to --Qualifile--.

In column 1 (page 10, item 56) at line 50, Under Other Publications, change "Arlene" to --Arlena--.

In column 2 (page 11, item 56) at line 8, Under Other Publications, change "Indentity" to --Identity--.

In column 2 (page 11, item 56) at line 31, Under Other Publications, change "Colombus" to --Columbus--.

In column 1 (page 12, item 56) at line 48, Under Other Publications, change "orgiweb" to --org/web--.

In the Drawings

Sheet 3 of 8 (Reference Numeral 330, Figure 3) at line 1, Change "/PROFILE" to --PROFILE--.

In the Specification

In column 1 at line 26, Change "and or" to --and/or--.

In the Claims

In column 15 at line 32, In Claim 1, after "calculating a" insert --first--.

Signed and Sealed this
Thirtieth Day of August, 2016

Michelle K. Lee

Michelle K. Lee
Director of the United States Patent and Trademark Office